THINGS THAT SCIENTISTS DON'T UNDERSTAND ABOUT NASA SPACEFLIGHT RESEARCH

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So you want to conduct human spaceflight research aboard the International Space Station (ISS)? Once your spaceflight research aboard the ISS is proposal is funded…. the real work begins. Because resources are so limited for ISS research, it is necessary to maximize the work being done, while at the same time, minimizing the resources spent. Astronauts may be presented with over 30 human research experiments and select, on average ~15 in which to participate. In order to conduct this many studies, ISSMP uses the study requirements provided by the principle investigator to integrate all of this work into the astronauts' complement.

The most important thing for investigators to convey to the ISSMP team is their RESEARCH REQUIREMENTS. Requirements are captured in the Experiment document. This document is the official record of how, what, where and when data will be collected. One common mistake that investigators make is not taking this document seriously, but when push comes to shove, if a research requirement is not in this document….it will not get done.

The research requirements are then integrated to form a complement of research for each astronaut. What do we mean by integration? Many experiments have overlapping requirements; blood draws, behavioral surveys, heart rate measurement. Where possible, these measures are combined to reduce redundancy and save crew time. Investigators can access these data via data sharing agreements. More examples of how ISS research is integrated will be presented.

There are additional limitations commonly associated with human spaceflight research that will also be discussed. Large/heavy hardware, invasive procedures, and toxic reagents are extremely difficult to implement on the ISS. There are strict limits placed on the amount of blood that can be drawn from crew members during (and immediately after) spaceflight. These limits are based on 30-day rolling accumulations. We have recently had to start restricting studies due to this limit.

The NASA Human Research Program (HRP) provides extensive support, via ISSMP, to help investigators cope with all of the intricacies of conducting human spaceflight research. This presentation will help you take the best advantage of that support.